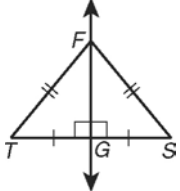
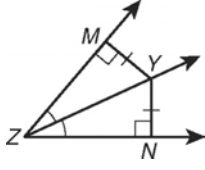
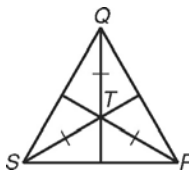
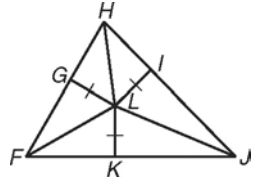
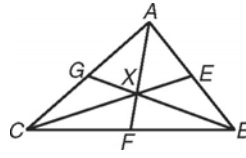
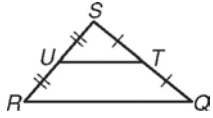


Dear family,

After we complete unit 5, we will be reviewing and taking the quarter 1 final test. The final test is will be worth one test grade (250 points). As a reminder with the exception of the quarter test, students can retake any assessment up to three times. However, they must do this before or after school.

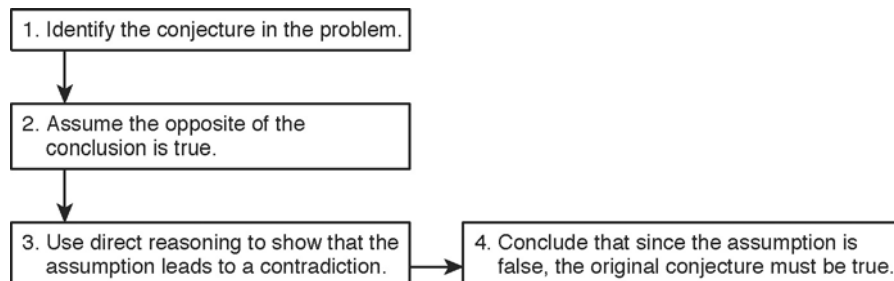
In this unit, your child will learn about the properties and attributes of triangles. Your child will learn a number of theorems to explain the properties and attributes of triangles. A number of them are outlined in the table.

Theorem	Definition	Example
Perpendicular Bisector Theorem	If a point is on the perpendicular bisector of a segment, then it is equidistant from the endpoints of the segment.	\overline{FG} is the perpendicular bisector of \overline{ST} . $\overline{FG} \perp \overline{TS}; \overline{TG} \cong \overline{GS};$ $FT = FS$ 
Angle Bisector Theorem	If a point is on the bisector of an angle, then it is equidistant from the sides of the angle.	\overline{ZY} bisects $\angle MZN$. $\angle MZY \cong \angle YZN,$ $MY = YN$ 
Circumcenter Theorem	The circumcenter of a triangle is equidistant from the vertices of the triangle. (perpendicular bisectors)	T is the circumcenter of $\triangle QRS$. $TS = TR = TQ$ 
Incenter Theorem	The incenter of a triangle is equidistant from the sides of the triangle. (angle bisectors)	L is the incenter of $\triangle FHJ$. $LK = LG = LI$ 
Centroid Theorem	The centroid of a triangle is located $\frac{2}{3}$ of the distance from each vertex to the midpoint of the opposite side. (medians)	X is the centroid of $\triangle ABC$. $AX = \frac{2}{3} AF; BX = \frac{2}{3} BG;$ $CX = \frac{2}{3} CE$ 
Triangle Midsegment Theorem	A midsegment of a triangle is parallel to a side of the triangle, and its length is half the length of that side.	T and U are midpoints. $\overline{TU} \parallel \overline{QR}; TU = \frac{1}{2} QR$ 

We will be learning these relationships by investigation on the computer using a program called “Geometer’s Sketchpad.”

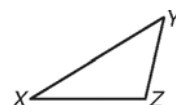
Your child will also learn to solve proofs in a new way in this chapter. He or

she will learn to write indirect proofs that begin by assuming that the conclusion is false. If watch the *Big Bang Theory* or *The Office* you have probably seen examples of Indirect Proof. The following flowchart shows the steps used to give an indirect proof.

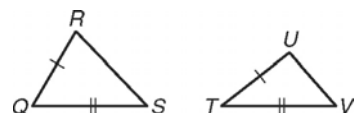


In class, we will use an indirect proof to prove that math class is fun.

There are certain relationships between the sides and the angles of a triangle that your child will learn to identify. For example, in a triangle, the larger angle is opposite the longer side. Here $XY > YZ$, so $m\angle Z > m\angle X$. The opposite of this logic can also be used by saying that in a triangle, the longer side is opposite the larger angle.

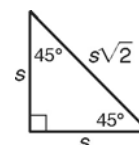


Your child will also learn to recognize inequalities in two triangles. Consider the two triangles at right. In these two triangles, $m\angle Q > m\angle T$. This means that $RS > UV$. We call this the hinge theorem.

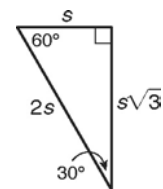


Your child will also learn to identify and discuss relationships for two types of special right triangles. This is one formula (set) the students need to memorize. They will use these formulas in Algebra II, precalc and calculus. There is always at least one type of these questions on the ACT/SAT as they are a good way to separate students based on the time it takes them to complete the problem.

In a 45° - 45° - 90° triangle, both legs are congruent, and the length of the hypotenuse is the length of a leg times $\sqrt{2}$.



In a 30° - 60° - 90° triangle, the length of the hypotenuse is two times the length of the shorter leg, and the length of the longer leg is the length of the shorter leg multiplied by $\sqrt{3}$.



We are coming to the end of the quarter. On Friday, October 18, we will take the practice test. It is online. It is a practice test and I encourage students to take the test multiple times. The best way to study for a math test is to do problems similar to test problems. We will review the practice test and take the final test for quarter 1 on the last day of the quarter, October 23. This test will account for 10% of the your child's quarter 1 grade. I strongly encourage your child to take this test seriously and study for it.

The following are the assignments/assessments that we will be completing for unit 5:

5 Are You Ready pretest & skills.

Sketchpad labs: Perpendicular and Angle bisectors.

5-1 Perpendicular and angle bisectors (p 316) 13, 15, 17, 18, 20, 21, 24, 26.

Sketchpad labs: Perpendicular and Angle bisectors in a triangle.

5-2 Bisectors in a triangle (pp 323) 12, 15-22, 32, 37, 38.

Sketchpad lab: Medians in a triangle

5-3 Medians and altitudes of a triangle (pp 330) 13, 14, 16, 17, 19, 22, 29-37, 40.

5-4 Triangle and Midsegment theorem (pp 336) 10, 13, 15, 17, 18, 22, 37

5A Ready to Go On & posttests

Chapter 5 quiz 1.

5-5 Indirect proof and Inequalities in one triangle (pp 348) 16-19, 23, 25, 29, 31, 32, 48, 62.

5-6 Inequalities in two triangles: (pp 355) 11, 13, 15, 16, 18, 24.

5-7 The Pythagorean Theorem (pp 365) 15, 17, 18, 19, 21, 23, 25, 26, 27, 30, 36.

5-8 Assignment (pp 372-373) 10-18, 20, 23, 26, 29.

5B Ready to Go On & posttests

Chapter 5 Quiz 2.

Unit 5 Test.

The actual dates of the assignments/assessments are located at <http://watertowngeometry.wikispaces.com/Assignments>